FRETurb v3.0

DIAGNOSTICS AND SIMULATION SOFTWARE FOR URBAN FREIGHT TRANSPORT

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WHAT is it ?

FRETurb is a software application for decision-making by both public an private actors. It is used:

- To know the freight movements generated in a urban area,
- To evaluate the congestion linked to freight transport,
- To simulate transport and development policies, and to perform environmental audits.

Methods

FRETurb is a bottom-up model starting from the National Urban Goods Movements Surveys* on operations and routes.

These surveys highlighted many salient characteristics of the national situation, making it possible to use Freturb for any urban area. Indeed, Freturb takes into account the characteristics of each business and service in a given urban area, so it can be adapted to any city, whatever its size, localization and specific nature.

It is a behavioural statistical model based on the nature of the generators of goods and the transport choices. It works as follow :

- Deliveries and Pick-ups generation,
- Distance and parking-time generation,
- OD matrix of vehicles.

WHO is it for ?

- Researchers (Geography, Economics, Ecology, Town planning, Modeling…)
- Government services, Local authorities, Consultants and Engineering offices
- Companies (Logisticians, Freight companies, Large distribution…)

MAIN references :

- AMBROSINI Ch., GONZALEZ-FELIU J., TOILIER F. (2013), A design methodology for scenario-analysis in urban freight modeling, paper n°7, *European Transport*, 54, pp. 1-21.
- ROUTHIER J.-L., TOILIER F. (2010), FRETURB : Simuler la logistique urbaine, in ANTONI J.-P. *Modéliser la ville : Formes urbaines et politiques de transport*, Economica, pp. 246-283.
- ROUTHIER J.-L., TOILIER F. (2007), FRETURB V3, A Policy Oriented Software of Modelling Urban Goods Movement, in *Proceedings of the 11th World Conference on Transport Research*, USA.

*see poster on this topic.

HOW does FRETurb work ?

Establishment file
Identifies all the private and public establishments in the city studied

Zone file
Describes the area studied (population, surface area, etc.).

❶ Estimation of the number of deliveries and pickups in the studied area:
Deliveries and pickups of an establishment depends on:
- type of activity and size of the establishment,
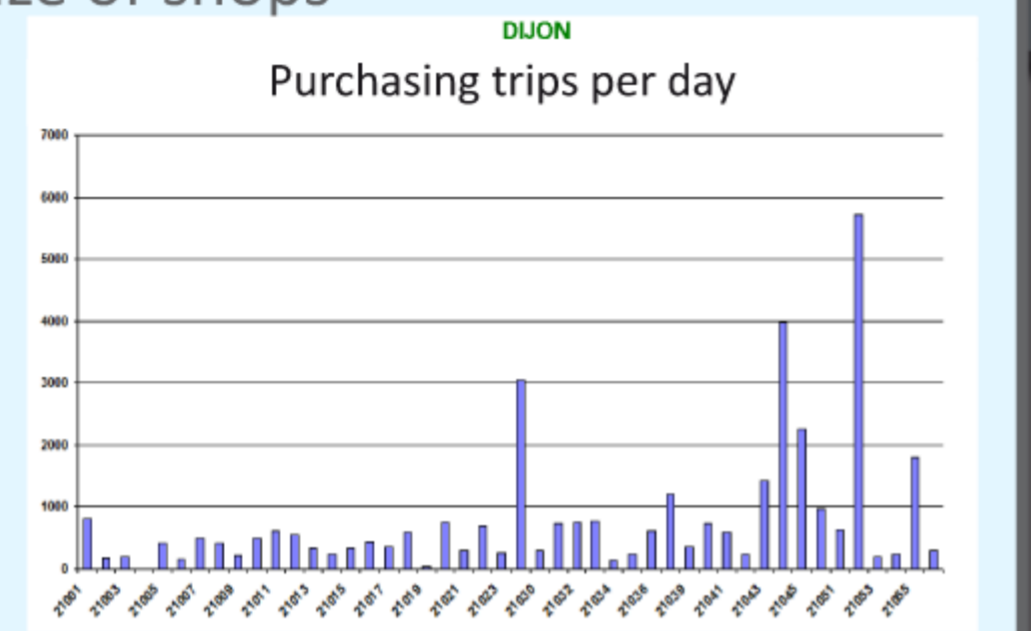- nature of premises (store, office, depot...).
Deliveries per week
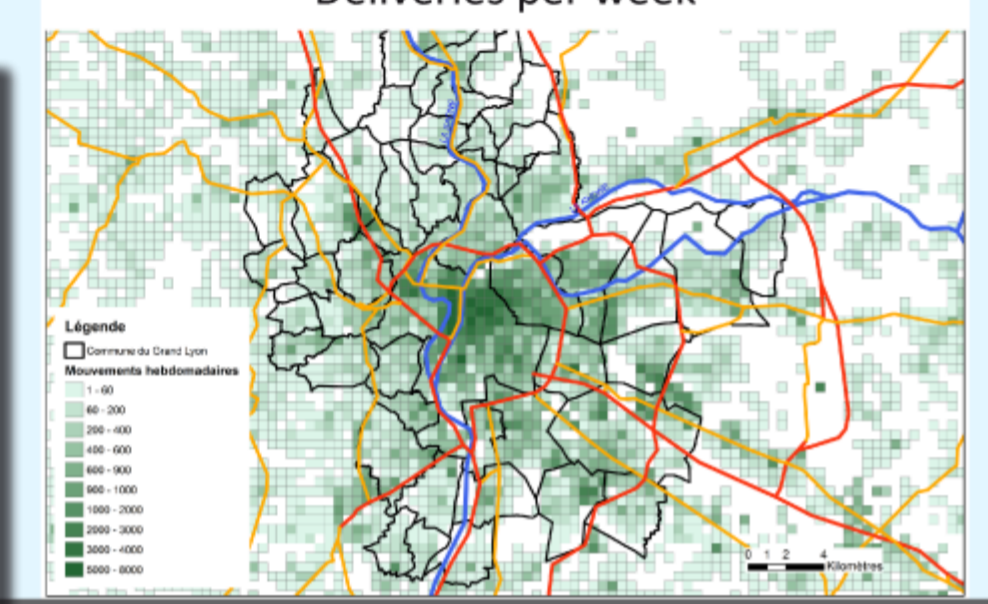
**❷ Estimation of the number of purchasing trips in the studied area:**
Purchasing trips of households depends on:
- population,
- car ownership rate,
- number and size of shops.
DIJON — Purchasing trips per day

❸ Determination of road occupancy by delivery vehicles when stopped
- authorized parking,
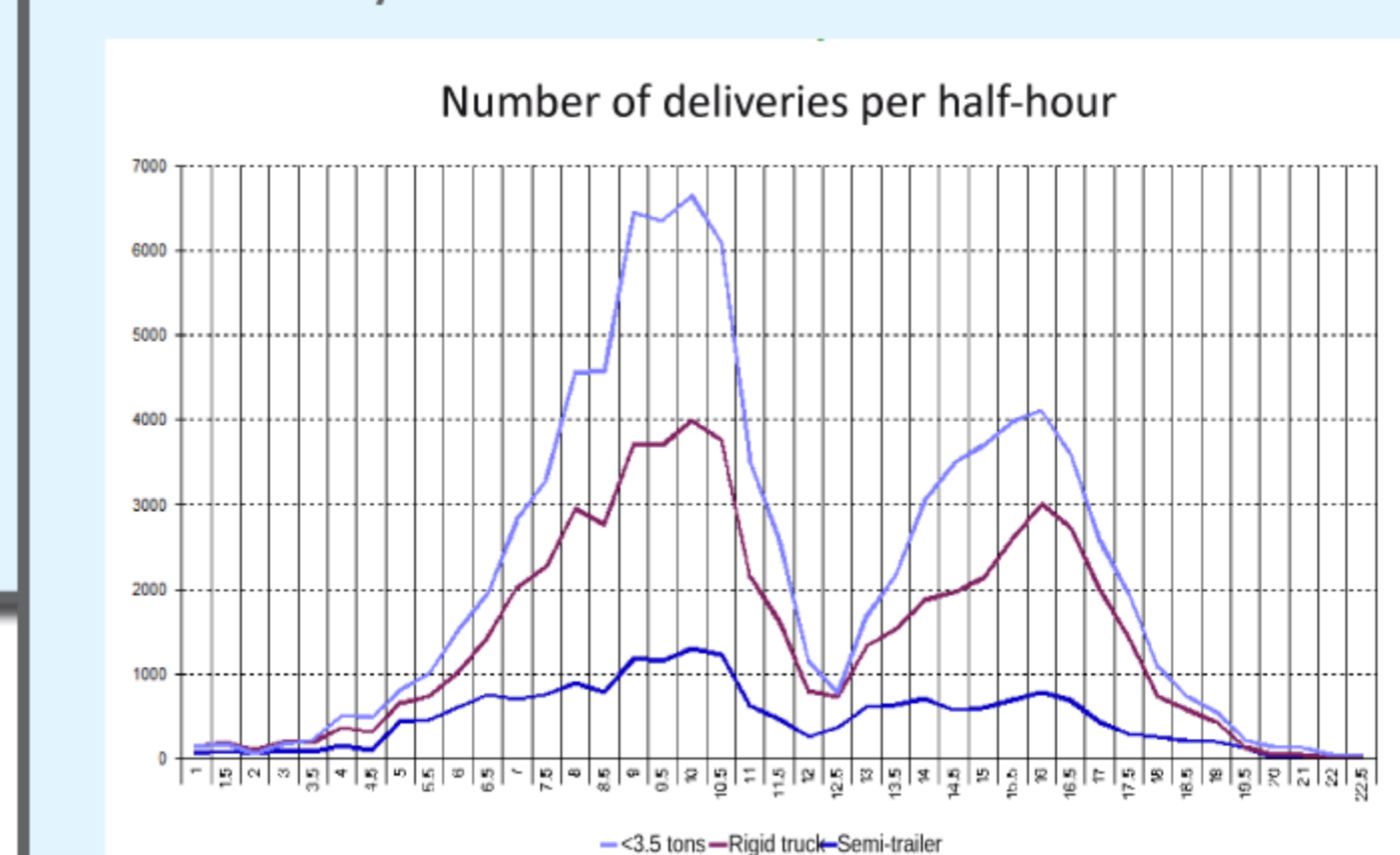- double parking,
- forbidden parking,
- private parking
DIJON — parking time by type of parking
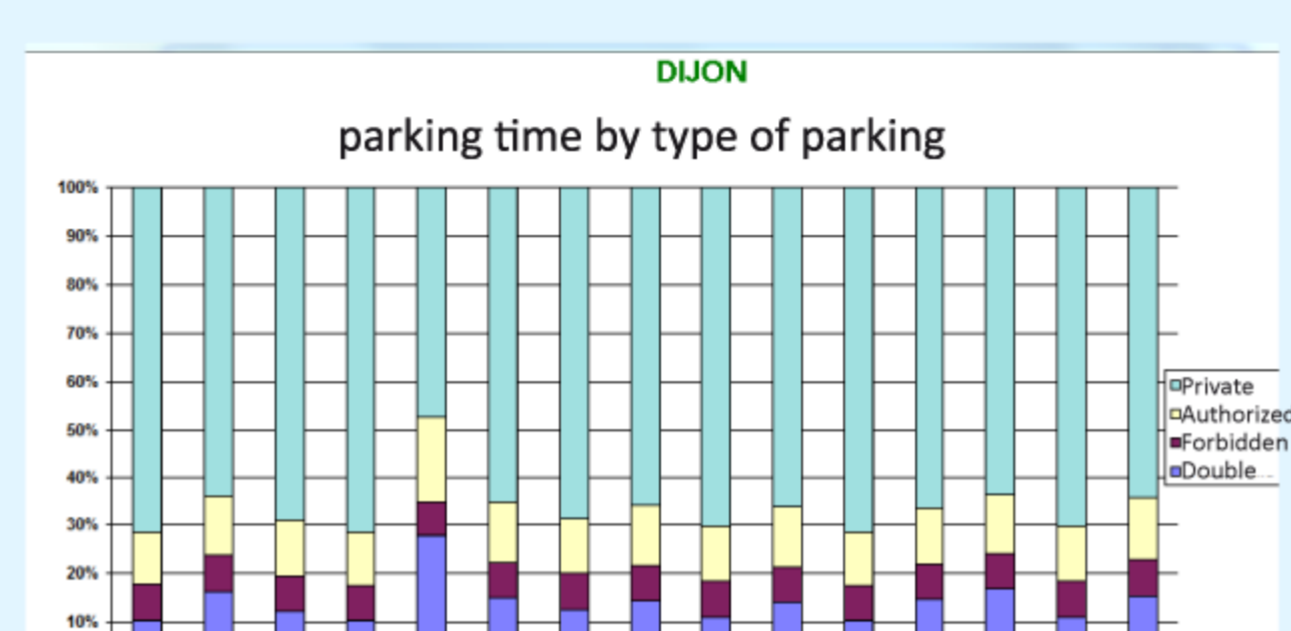
❹ Simulation of road occupancy by delivery vehicles in motion
For each type of vehicle, it indicates the number of miles travelled from a zone of the study area to other zones in the perimeter.
Number of kms per vehicle

❺ Volumes of traffic according to the time of day
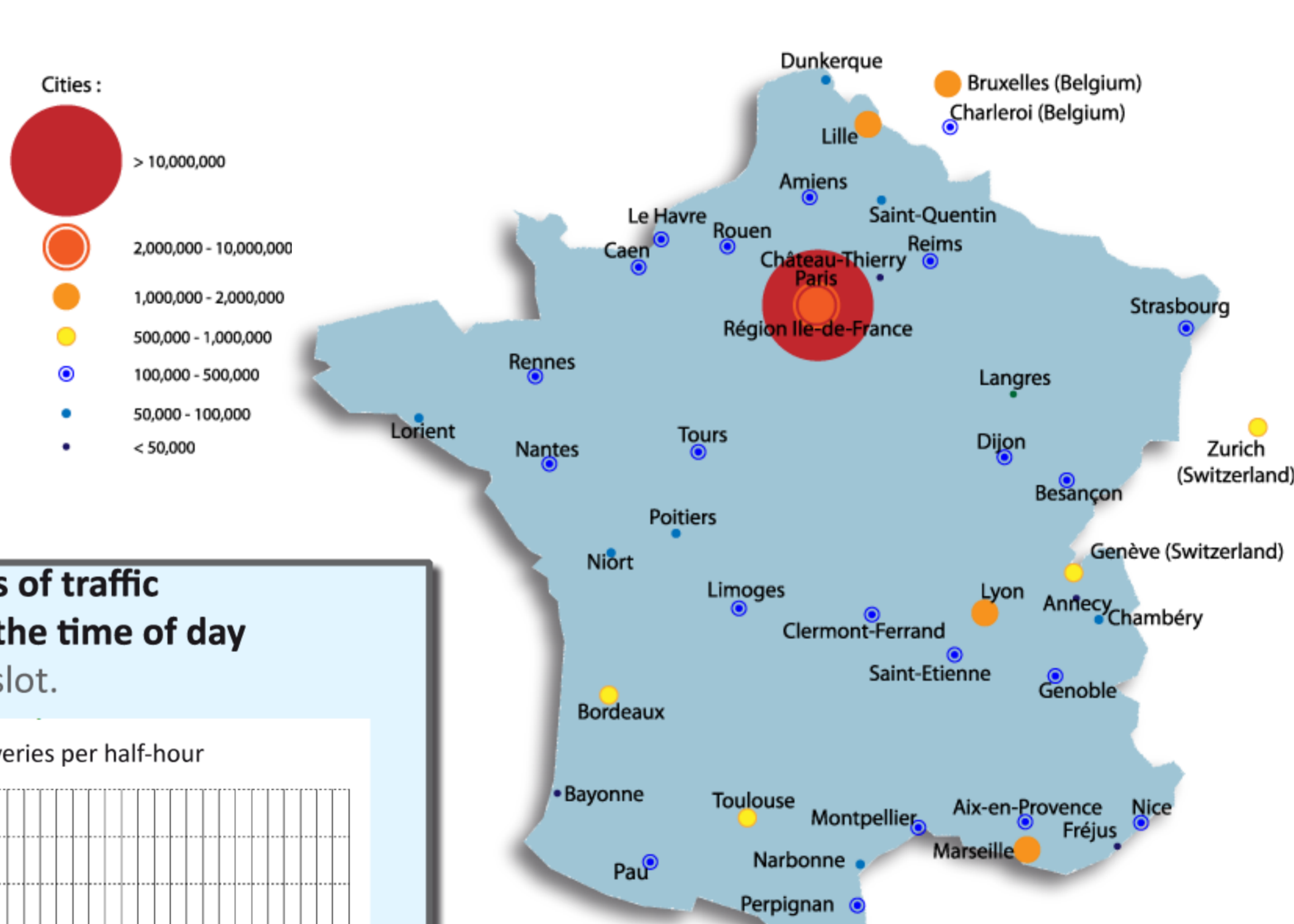24 hours by 30 minute slot.
Number of deliveries per half-hour

❻ Distribution
Determine the origins and destinations of vehicles circulating in the study area to deliver and pickup goods.
The flows obtained can be integrated in a traffic model and matched against commuter transport to identify bottlenecks.

WHERE is it used ?

Cities :
- > 10,000,000
- 2,000,000 - 10,000,000
- 1,000,000 - 2,000,000
- 500,000 - 1,000,000
- 100,000 - 500,000
- 50,000 - 100,000
- < 50,000

Dunkerque, Bruxelles (Belgium), Charleroi (Belgium), Lille, Amiens, Saint-Quentin, Le Havre, Rouen, Caen, Château-Thierry, Reims, Paris, Région Ile-de-France, Strasbourg, Rennes, Langres, Lorient, Nantes, Tours, Dijon, Zurich (Switzerland), Besançon, Poitiers, Genève (Switzerland), Niort, Limoges, Lyon, Annecy, Chambéry, Clermont-Ferrand, Saint-Etienne, Grenoble, Bordeaux, Bayonne, Toulouse, Montpellier, Aix-en-Provence, Nice, Fréjus, Marseille, Pau, Narbonne, Perpignan

AND then ?

The SILOGUES project* aims at transforming Freturb into a dynamic model by simulating scenarios (urban development, transport and environmental policies, purchase behaviour…).

FOR more information

http://freturb.let.fr/
http://tmv.let.fr/

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